Rumen protected methionine in reduced protein diet for lactating mediterranean buffaloes

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OBJECTIVES

The aim of the research was to evaluate the effect of supplementing rumen protected methionine (RPM) on milk yield and quality in lactating buffaloes fed on a diet containing a reduced amount of crude protein (CP), in order to optimize the nitrogen utilization and reduce the polluting excretions.

METHODS

Sixteen multiparous Mediterranean buffaloes (Bubalus bubalis L.), homogeneous for number and lactation stage, milk production traits and body condition score, were divided in two groups and fed (Tab.1) for 120 days on two isoenergetic diets (0.90 MilkFU/kg DM) containing, on DM basis:
-**A** 44% corn silage,13% soybean meal, 15% corn meal, 26% alfalfa hay.
-**B** 44% corn silage, 9.5% soybean meal, 18,5% corn meal 26%, alfalfa hay, with supplementation of RPM (12 g/head/d).
Milk production traits were recorded daily; milk samples of each animal were collected every two weeks in the morning and afternoon; crude protein, casein, fat and urea percentage were determined.

	DM %	Ash (%DM)	CP (%DM)	RDP (%DM)	RUP (%DM)	EE (%DM)	CF (%DM)	NDF (%DM)	ADF (%DM)	ADL (%DM)	NFC (%DM)	UFL
Group A	63.3	7.15	15.53	9.90	5.63	1.86	19.61	39.92	25.50	4.63	35.46	0.90
Group B	63.3	6.96	14.16	9.01	5.15	1.95	19.49	39.76	25.32	4.60	37.09	0.90

Tab. 1 chemical composition of diets

RESULTS AND DISCUSSION

The differences between groups were tested using a monofactorial model. Milk yield (Fig. 1) and CP (Fig. 2) content resulted similar in the two groups (7.74 kg/head/d in A vs 7.97 kg/head/d in B and 4.71%.in A vs 4.60% in B respectively). No differences were found either in casein (3.99% in A vs 4.00% in B) or in fat percentage (9.39% in A vs 9.29% in B); the urea level in milk was lower in RPM supplemented diet (36.87 mg/100 ml in B vs 42.88 mg/100 ml in A) (Fig.3).

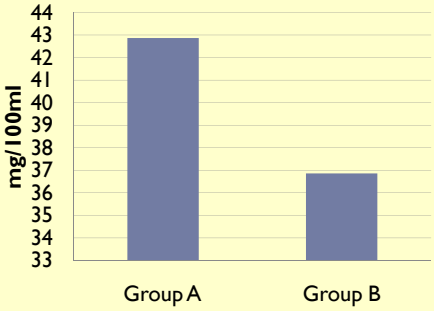

Fig. 3 levels of milk urea nitrogen

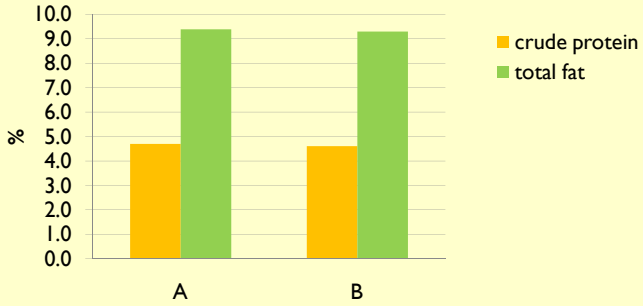

Fig. 2 % of crude protein and total fat in milk

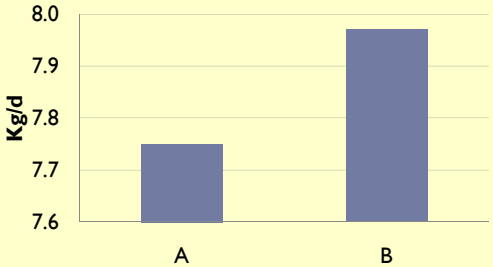

Fig. 1 Milk yield (Kg/d/head)

CONCLUSIONS

These results seem to indicate that a reduction of crude protein level in RPM supplemented diet does not affect the milk yield and quality. Particularly the content of casein, the most relevant parameter, with the fat, for the production of mozzarella cheese, could suggest that milk protein synthesis is improved when the limiting AA methionine is supplied in a protected form. In order to decrease the nitrogen excretion a further reduction of CP level of diets could be studied.